IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application Of:)	Atty. Docket No.: 47171-00373USD1
)	
Douglas U. Mennie)	PRIOR APPLICATION
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)	
Application No.: Not Assigned)	Group Art Unit: 2621
)	
Filed: February 27, 2002)	
)	
For: Automatic Funds Processing System)	

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Attn: Box Patent Application

Dear Sir:

This application is a divisional of U.S. Application No. 08/814,978, filed March 11,

1997. Prior to examining the subject application, please enter the following amendments.

IN THE SPECIFICATION:

Page 1, title, amend title as follows.

Automatic Funds [An Automated Document] Processing System [Using Full Image

Scanning]

Page 1, lines 2-3, amend paragraph as follows.

This is a divisional of U.S. Application No. 08/814,978, filed March 11, 1997; which is a

complete application claiming the benefit of U.S. Application No. 60/031,604, filed November

27, 1996, and is a continuation-in-part of U.S. Application [patent application Serial] No. 08/664,262, filed May 13, 1996, now issued as U.S. Patent No. 5,982,918.

Page 4, lines 1-2, amend paragraph as follows.

FIG. 1s is a perspective [side] view of a document processor system having two output bins [an evaluation device depicting various transport rolls in side elevation according to one embodiment of the present invention];

Page 4, lines 3-4, amend paragraph as follows.

FIG. 1t is a side view of an evaluation device depicting various transport rolls in side elevation [a stripping wheel] according to one embodiment of the present invention;

Page 4, lines 17-18, amend paragraph as follows.

FIG. [FIGs]. 4e illustrates one embodiment of size determining sensors;

FIG. [and] 4f illustrates [illustrate] the operation of the scanning process in the discrimination unit according to principles of the present invention;

Page 6, lines 4-6, amend paragraph as follows.

FIG. 28 is a flowchart illustrating the steps performed in optically determining the denomination of a bill based on the location and color of the security thread according to principles of the present invention;

Page 6, lines 9-10, amend paragraph as follows.

FIG. 30 is a flowchart illustrating the steps performed in optically <u>denominating a bill and authenticating the bill based on thread location and/or color information</u> [determining the denomination of a bill according to the principles of the present invention];

Page 6, lines 11-13, amend paragraph as follows.

FIG. 31 is a flowchart illustrating the steps performed in <u>denominating</u> [optically determining the denomination of] a bill based on thread location <u>and/or color information and optically authenticating the bill</u> [according to principles of the present invention];

Page 7, lines 4-6, delete paragraph.

Page 7, lines 7-8, amend paragraph as follows.

FIGs. <u>39-47</u> [40-44] illustrate alternative methods for <u>denominating and/or authenticating</u> [determining characteristic information] according to principles of the present invention;

Page 7, lines 9-18, delete five paragraphs and insert the following paragraph.

--<u>FIGs. 48a-48c illustrate control panels;</u>--

Page 7, lines 24-25, amend paragraph as follows.

FIG. 56a is a flowchart of <u>conducting a document transaction</u> [the bill sorting algorithm unit] according to principles of the present invention;

Page 8, lines 12-13, amend paragraph as follows.

FIG. 60 is an enlarged section taken generally along line 62-62 [60-60] in FIG. 59, showing the coins in full elevation;

Page 8, lines 14-15, amend paragraph as follows.

FIG. 61 is an enlarged section taken generally along line 63-63 [61-61] in FIG. 59, showing in full elevation a nickel registered with an ejection recess;

Page 9, lines 7-27, amend paragraph as follows.

As illustrated in FIGs. 1a and 1b, a user deposits bills [currency] or documents into an input receptacle 16. By "currency", "documents", or "bills" it is meant to include not only conventional U.S. or foreign bills, such as $1 bills, but also to include checks, deposit slips, coupon and loan payment documents, food stamps, cash tickets, savings withdrawal tickets, check deposit slips, savings deposit slips, and all other documents utilized as a proof of deposit at financial institutions. It is also meant by the term "documents" to include loan applications, credit card applications, student loan applications, accounting invoices, debit forms, account transfer forms, and all other types of forms with predetermined fields. By "financial institution documents" it is meant to include all of the above documents with the exception of currency. A transport mechanism 18 transports the documents from the input receptacle 16 past a full image scanner 12, as the documents are illuminated by a light (not shown). The full image scanner 12, described in greater detail below, scans the full image of the document, recognizes certain fields within the document, and processes information contained within these fields in the document. For example, the full image scanner 12 may search for the serial number field when processing

U.S. currency, determine the serial number once the field is located, and store the serial number for later use by the system. The system may also be used to capture any document image for electronic document display, electronic document storage, electronic document transfer, electronic document recognition (such as denomination recognition or check amount recognition) or any other processing function that can be performed using an electronic image.

Page 9, line 28, to page 10, line 4, amend paragraph as follows.

Next, the transport mechanism 18 transports the document past a discrimination and authentication unit 14 which is also described in greater detail below. The discrimination and authentication unit 14 authenticates the document and, in the case of a bill, determines the denomination of the bill. On other documents, such as checks, the system may capture information such as the check amount, account number, bank number, or check number. The discrimination and authentication unit 14 also directs the transport unit 18 to place the document in the output receptacle 20 [16] as described below.

Page 18, lines 16-22, amend paragraph as follows.

Another image processing network is described in connection with FIG. 1v. In this network, gateways are used to connect networks which have different network architectures. Gateways use all seven layers of the OSI model and perform protocol conversion functions at the Application layer. An outside accounting system 6148 is coupled to FEP 6150a which is connected to a token-ring interface coupler (TIC) gateway 6150b. TIC gateway 6150b provides connections to token ring networks 6156, 6162 [6160], and 6164 which include other full image scanners.

Page 18 lines 23-27, amend paragraph as follows.

The highest performance LAN gateway is the link between a token-ring network 6156 and the image processing device's FEP 6150a [6105a] via the TIC gateway 6150b. The TIC 6150b permits a 4 mbps or 16 mbps connection depending upon the hardware used. The TIC 6150b is viewed by the host as a cluster controller; the outside accounting system polls the TIC 6150b which in turn polls any units on the token-ring network 6156.

Page 21, lines 9-14, amend paragraph as follows.

FIG. 1s [1o] depicts an exterior perspective view and FIG. 1t [1s] is a side view of a multi-pocket document processing system 5010 according to one embodiment of the present invention. According to one embodiment the document processing system 5010 is compact having a height (H) of about 17 ½ inches, width (W) of about 13 ½ inches, and a depth (D) of about 15 inches. The evaluation device 5010 may be rested upon a tabletop.

Page 21, lines 15-27, amend paragraph as follows.

In FIGS. 1s and 1t [1o and 1s], documents are fed, one by one, from a stack of documents placed in an input receptacle 5012 into a transport mechanism. The transport mechanism includes a transport plate or guide plate 240 [5240] for guiding documents to one of a plurality of output receptacles 5217a and 5217b. Before reaching the output receptacles 5217a, 5217b a document can be, for example, evaluated, analyzed, authenticated, discriminated, counted and/or otherwise processed by a full image scanning module. The results of the above process or processes may be used to determine to which output receptacle 5217a, 5217b a document is directed. In one embodiment, documents such as currency bills are transported, scanned, and

identified at a rate in excess of 800 bills or documents per minute. In another embodiment, documents such as currency bills are transported, scanned, and identified at a rate in excess of 1000 bills or documents per minute. In the case of currency bills, the identification includes the determination of the denomination of each bill.

Page 21, line 28, to page 22, line 9, amend paragraph as follows.

The input receptacle 5012 for receiving a stack of documents to be processed is formed by downwardly sloping and converging walls 205 and 206 [5205 and 5206] (see FIG. 1t [1s]) formed by a pair of removable covers (not shown) which snap onto a frame. The converging wall 206 [5206] supports a removable hopper (not shown) that includes vertically disposed side walls (not shown). One embodiment of an input receptacle is described and illustrated in more detail in United States patent application Serial No. 08/450,505, filed May 26, 1995, entitled "Method and Apparatus for Discriminating and Counting Documents", now issued as U.S. Pat. No. 5,687,963, which is incorporated by reference in its entirety. The document processing system 5010 in FIG. 1s [1o] has a touch panel display 5015 in one embodiment of the present invention which displays appropriate "functional" keys when appropriate. The touch panel display 5015 simplifies the operation of the multi-pocket document processing system 5010. Alternatively or additionally physical keys or buttons may be employed.

Page 22, lines 10-22, amend paragraph as follows.

From the input receptacle 5012, the documents are moved in seriatim from a bottom of the stack along a curved guideway 211 [5211] (shown in FIG. 1t [1s]) which receives documents moving downwardly and rearwardly and changes the direction of travel to a forward direction.

Although shown as being fed from the bottom, the documents can be fed from the top, front, or back of the stack. The type of feeding used could be friction feed, a vacuum feed, or any other method of feeding known to those skilled in the art. A stripping wheel [5220 (shown in FIG. 1t)] mounted on a stripping wheel shaft 219 [5219] aids in feeding the documents to the curved guideway 211 [5211]. The curvature of the guideway 211 [5211] corresponds substantially to the curved periphery of a drive roll 223 [5223] so as to form a narrow passageway for the bills along the rear side of the drive roll 233 [5223]. An exit end of the curved guideway 211 [5211] directs the documents onto the transport plate 240 [5240] which carries the documents through an evaluation section and to one of the output receptacles 5217a, 5217b.

Page 22, lines 23-30, amend paragraph as follows.

Stacking of the documents in one embodiment is accomplished by a pair of driven stacking wheels 5212a and 5213a for the first or upper output receptacle 5217a and by a pair of stacking wheels 5212b and 5213b for the second or bottom output receptacle 5217b. The stacker wheels 5212a,b and 5213a,b are supported for rotational movement about respective shafts 214a,b [5215a,b] journalled on a rigid frame and driven by a motor (not shown). Flexible blades of the stacker wheels 5212a and 5213a deliver the documents onto a forward end of a stacker plate 214a [5214a]. Similarly, the flexible blades of the stacker wheels 5212b and 5213b deliver the bills onto a forward end of a stacker plate 214b [5214b].

Page 23, lines 1-4, amend paragraph as follows.

A diverter 260 [5260] directs the documents to either the first or second output receptacle 5217a, 5217b. When the diverter is in a lower position, documents are directed to the first output

receptacle 5217a. When the diverter 260 [5260] is in an upper position, documents proceed in the direction of the second output receptacle 5217b.

Page 23, lines 5-9, amend paragraph as follows.

FIGS. 1j-1 depict multi-pocket document processing system 10 [5010], such as a currency discriminators, according to embodiments of the present invention. FIG. 1j [1l] depicts a three-pocket document processing system 10 [5010]. FIG. 1k [1j] depicts a four-pocket document processing system 10 [5010]. FIG. 1l [1k] depicts a six-pocket document processing system 10 [5010].

Page 23, lines 10-15, amend paragraph as follows.

The multi-pocket document processing systems 10 [5010] in FIG. 1j-1 have a transport mechanism which includes a transport plate or guide plate 240 [5240] for guiding currency documents to one of a plurality of output receptacles 217 [5217]. The transport plate 240 [5240] according to one embodiment is substantially flat and linear without any protruding features. Before reaching the output receptacles 217 [5217], a document can be, for example, evaluated, analyzed, authenticated, discriminated, counted and/or otherwise processed.

Page 23, lines 16-26, amend paragraph as follows.

The multi-pocket document processing systems 10 [5010] move the documents in seriatim from a bottom of the stack along the curved guideway 211 [5211] which receives documents moving downwardly and rearwardly and changes the direction of travel to a forward direction. Although shown as being fed from the bottom, the documents can be fed from the top,

front, or back of the stack. An exit end of the curved guideway 211 [5211] directs the documents onto the transport plate 240 [5240] which carries the documents through an evaluation section and to one of the output receptacles 217 [5217]. A plurality of diverters 260 [5260] direct the documents to the output receptacles 217 [5217]. When the diverter 260 [5260] is in a lower position, documents are directed to the corresponding output receptacle 217 [5217]. When the diverter 260 [5260] is in an upper position, documents proceed in the direction of the remaining output receptacles.

Page 23, line 27, to page 24, line 5, amend paragraph as follows.

The multi-pocket document processing systems 10 [5010] of FIG. 1j-1 according to one embodiment includes passive rolls 260 [5250], 251 [5251] which are mounted on an underside of the transport plate 240 [5240] and are biased into counter-rotating contact with their corresponding driven upper rolls 223 [5223] and 241 [5241]. Other embodiments include a plurality of follower plates which are substantially free from surface features and are substantially smooth like the transport plate 240 [5240]. The follower plates 262 [5262] and 278 [5278] are positioned in spaced relation to transport plate 240 [5240] so as to define a currency pathway therebetween. In one embodiment, follower plates 262 [5262] and 278 [5278] have apertures only where necessary for accommodation of passive rolls 268, 270, 284, and 286 [5268, 5270, 5284, and 5286].

Page 24, lines 6-10, amend paragraph as follows.

The follower plate, such as follower plate 262 [5262], works in conjunction with the upper portion of the transport plate 240 [5240] to guide a bill from the passive roll 251 [5251] to

a driven roll 264 [5264] and then to a driven roll 266 [5266]. The passive rolls 268, 270 [5268, 5270] are biased by H-springs into counter-rotating contact with the corresponding driven rolls 264 and 266 [5264 and 5266].

Page 33, lines 8-11, amend paragraph as follows.

A procedure for scanning bills and generating characteristic patterns is described in United States Patent No. 5,295,196 referred to above and incorporated by reference in its entirety and co-pending U.S. patent application Serial No. 08/243,807, filed on May 16, 1994 and entitled "Method and Apparatus for Currency Discrimination", now issued as U.S. Pat. No. 5,633,949.

Page 34, lines 11-24, amend paragraph as follows.

Secondly, while the printed indicia on U.S. currency is enclosed within a thin borderline, the sensing of which may serve as a trigger to begin scanning using a wider slit, most currencies of other currency systems such as those from other countries do not have such a borderline. Thus the system described above may be modified to begin scanning relative to the edge of a bill for currencies lacking such a borderline. Referring to FIG. 4f, two leading edge detectors 968 are shown. The detection of the leading edge 69 [969] of a bill 970 by leading edge sensors 968 triggers scanning in an area a given distance away from the leading edge of the bill 970, e.g., D_1 or D_2, which may vary depending upon the preliminary indication of the identity of a bill based on the dimensions of a bill. Alternatively, the leading edge 69 [969] of a bill may be detected by one or more of the scanheads (to be described below). Alternatively, the beginning of scanning may be triggered by positional information provided by the encoder 932 of FIG. 4a, for example,

in conjunction with the signals provided by sensors 962 of FIG. 4e, thus eliminating the need for leading edge sensors 968.

Page 35, lines 22-28, amend paragraph as follows.

To accommodate scanning in areas other than the central portion of a bill, multiple scanheads may be positioned next to each other. One embodiment of such a multiple scanhead system is depicted in FIG. 6. Multiple scanheads 972a-c and 972d-f are positioned next to each other along a direction lateral to the direction of bill movement. Such a system permits a bill 74 [974] to be scanned along different segments. Multiple scanheads 972a-f are arranged on each side of the transport path, thus permitting both sides of a bill 74 [974] to be scanned.

Page 36, line 28, to page 37, line 7, amend paragraph as follows.

According to the embodiment of FIG. 6, the bill transport mechanism operates in such a fashion that the central area C of a bill 74 [974] is transported between central scanheads 972b and 972e. Scanheads 972a and 972c and likewise scanheads 972d and 972f are displaced the same distance from central scanheads 972b and 972e, respectively. By symmetrically arranging the scanheads about the central region of a bill, a bill may be scanned in either direction, e.g., top edge first (forward direction) or bottom edge first (reverse direction). As described above with respect to FIG. 4a, master patterns are stored from the scanning of genuine bills in both the forward and reverse directions. While a symmetrical arrangement is preferred, it is not essential provided appropriate master patterns are stored for a non-symmetrical system.

Page 37, lines 8-13, amend paragraph as follows.

While FIG. 6 illustrates a system having three scanheads per side, any number of scanheads per side may be utilized. Likewise, it is not necessary that there be a scanhead positioned over the central region of a bill. For example, FIG. 7 illustrates another embodiment of the present invention capable of scanning the segments S_1 and S_2 of FIG. 4f. Scanheads 976a, 976d, 976e, and 976h scan a bill 78 [978] along segment S_1 while scanheads 976b, 976c, 976f, and 976g scan segment S_2.

Page 49, lines 13-23, amend paragraph as follows.

With regard to optical sensing, a variety of currency characteristics can be measured such as detection of density (U.S. Pat. No. 4,381,447), color (U.S. Pat. Nos. 4,490,846; 3,496,370; 3,480,785), length and thickness (U.S. Pat. No. 4,255,651), the presence of a security thread (U.S. Pat. No. 5,151,607) and holes (U.S. Pat. No. 4,381,447), and other patterns of reflectance and transmission (U.S. Pat. No. 3,496,370; 3,679,314; 3,870,629; 4,179,685). Color detection techniques may employ color filters, colored lamps, and/or dichroic beamsplitters (U.S. Pat. Nos. 4,841,358; 4,658,289; 4,716,456; 4,825,246, 4,992,860 and EP 325,364). An optical sensing system using ultraviolet light is described in the assignee's co-pending U.S. patent application Serial No. 08/317,349, filed October 4, 1994, now issued as U.S. Pat. No. 5,640,463, and incorporated herein by reference, and described below.

Page 52, lines 4-6, amend paragraph as follows.

The optical sensing and correlation technique are similar to that described in connection with FIG. 4a and the description made in connection with FIG. 4a is applicable to FIG. 15 [5].

Page 58, lines 8-29, amend paragraph as follows.

Referring now to FIG. 19, there is shown a functional block diagram illustrating one embodiment of a discrimination and authentication unit according to the present invention. FIG. 19 shows an UV sensor 442, a fluorescence sensor 444, and filters 446, 448 of a detection system such as the detection system 426 of FIG. 18a [4a]. Light from the document passes through the filters 446, 448 before striking the sensors 442, 444, respectively. An ultraviolet filter 446 filters out visible light and permits UV light to be transmitted and hence to strike UV sensor 442. Similarly, a visible light filter 448 filters out UV light and permits visible light to be transmitted and hence to strike fluorescence sensor 444. Accordingly, UV light, which has a wavelength below 400 nm, is prevented from striking the fluorescence sensor 444 and visible light, which has a wavelength greater than 400 nm, is prevented from striking the UV sensor 442. In one embodiment the UV filter 446 transmits light having a wavelength between about 260 nm and about 380 nm and has a peak transmittance at 360 nm. In one embodiment, the visible light filter 448 is a blue filter and preferably transmits light having a wavelength between about 415 nm and about 620 nm and has a peak transmittance at 450 nm. The above preferred blue filter comprises a combination of a blue component filter and a yellow component filter. The blue component filter transmits light having a wavelength between about 320 nm and about 620 nm and has a peak transmittance at 450 nm. The yellow component filter transmits light having a wavelength between about 415 nm and about 2800 nm. Examples of suitable filters are UG1 (UV filter), BG23 (blue bandpass filter), and GG420 (yellow longpass filter), all manufactured by Schott. In one embodiment the filters are about 8 mm in diameter and about 1.5 mm thick.

Page 62, lines 1-13, amend paragraph as follows.

The determination of whether the level of UV reflected off a document is high or low is made by sampling the output of the UV sensor at a number of intervals, averaging the readings, and comparing the average level with the predetermined high/low threshold. Alternatively, a comparison may be made by measuring the amount of UV light reflected at a number of locations on the bill and comparing these measurements with those obtained from genuine bills. Alternatively, the output of one or more UV sensors may be processed to generate one or more patterns of reflected UV light and these patterns may be compared to the patterns generated by genuine bills. Such a pattern generation and comparison technique may be performed by modifying an optical pattern technique such as that disclosed in United States Pat. No. 5,295,196 incorporated herein by reference in its entirety or in United States patent application Serial No. 08/287,882 filed August 9, 1994 for a "Method and Apparatus for Document Identification," now issued as U.S. Pat. No. 5,652,802, incorporated herein by reference in its entirety.

Page 69, line 28, to page 70, line 9, amend paragraph as follows.

Examples of arrangements of magnetic sensors that may be used to detect the above described magnetic characteristics are illustrated in FIGs. 23 [23a, 23b,] and 24. Additionally, the arrangements described above may also be employed such as those depicted in FIGs. 4f, 6-10, 12, and 15. FIG. 23 illustrates bill [23a, 23b, illustrate bills] 360 [and 361] being transported past magnetic sensors 364a-d [and 366a-g] in the narrow dimension of the bill. FIG. 24 illustrates bill 370 being transported past magnetic sensors 374a-c in the long dimension of the bill. Magnetic scanning using these sensors may be performed in a manner similar to that described above in connection with optical scanning. For example, each sensor may be used to

generate a magnetically scanned pattern such as that depicted in FIG. 14. Such patterns may be compared to stored master magnetic patterns. The scanning may be performed in conjunction with timing signals provided by an encoder such as described above in connection with optical scanning.

Page 70, lines 10-21, amend paragraph as follows.

Alternatively, instead of generating scanned magnetic patterns, the presence or absence of magnetic ink in various areas may be detected and compared the stored master information coinciding with several areas where magnetic ink is expected and not expected on genuine bills of various denominations. For example, the detection of magnetic ink at area F is be expected for a $100 bill but might not be for a $50 bill and vice versa for area F'. See FIGs. 21 and 22 [21a and 21b]. Accordingly, the detected magnetic information may be used to determine the denomination of a bill and/or to authenticate that a bill which has been determined to have a given denomination using a different test, such as via a comparison of an optically scanned pattern with master optical patterns, has the magnetic properties expected for that given denomination. Timing signals provided by an encoder such as described above in connection with optical scanning may be employed in detecting magnetic characteristics of specific areas of bills.

Page 70, lines 22-25, amend paragraph as follows.

Additionally, for magnetic properties that are the same for all bills, such as the presence or absence of magnetic ink in a given location, such as the absence of magnetic ink in area 347 in

FIGs. <u>21 and 22</u> [21a and 21b], may be used as a general test to authenticate whether a given bill has the magnetic properties associated with genuine U.S. currency.

Page 70, line 26, to page 71, line 10, delete paragraph.

Page 71, lines 11-22, amend paragraph as follows.

Alternatively, magnetic sensors 364a-d, 366a-g, and 374a-c may detect the magnitude of magnetic fields at various locations of a bill and perform bill authentication or denomination based thereon. For example, the strength of magnetic fields may be detected at areas J, 344a, and 348. See FIG. <u>21</u> [21a]. In a genuine $100 bill, no magnetic ink is present at area 348. One test to call a bill to be a $100 bill or authenticate that a bill is a $100 bill would be to compare the relative levels of magnetic field strength detected at these areas. For example, a bill may be determined genuine if a greater signal is generated by scanning area 344a than area J which in turn is greater than for area 348. Alternatively, generated signals may be compared against expected ratios, for example, that the signal for area 344a is greater than 1.5 times the signal for area J. Alternatively, the signals generated by scanning various locations may be compared to reference signals associated with genuine bills for those locations.

Page 71, line 23, to page 72, line 2, amend paragraph as follows.

Another denominating or authenticating technique may be understood with reference to area 346 of FIG. <u>21</u> [21a]. It will be recalled that for this area of a $100 bill a strong magnetic signal is generated when this area is scanned in the long dimension of the bill and a weak signal is generated when this area is scanned in the narrow dimension. Accordingly, the signals

generated by sensors 364 and 374 for this area can be compared to each other and/or to different threshold levels to determine whether a particular bill being scanned has these properties. This information may be then used to assist in calling the denomination of the bill or authenticating a bill whose denomination has previously been determined.

Page 104, line 29, to page 105, line 11, amend paragraph as follows.

The control panel 2702 of FIGs. 53a and 53b comprises a display area 2704, an accept key 2710, a next or other denomination key 2711, and a continuation key 2712. Alternatively, the accept key may be designated a "YES" key while the other denomination key may be designated a "NO" key. These keys may be physical keys or displayed keys. The system prompts or suggest a denomination by displaying an appropriate message in the display area 2704. If the operator wishes to accept this denomination suggestion, the accept key 2710 may be selected. If other the operator wishes to select a different denomination, the other denomination key 2711 may be selected. If in the example given in FIG. 53a the operator wishes to select a denomination other than the $5 prompted in the display area 2704, the other denomination key 2711 may be selected which results in prompting of a different denomination, e.g., $2 as shown in FIG. 53b [55b]. The "OTHER DENOM" key 2711 may be repeatedly selected to scroll through the different denominations.

Page 111, lines 7-14, amend paragraph as follows.

According to another embodiment, a denomination to be prompted to the operator is determined on the basis of preset criteria established by the manufacturer. For example, in FIG. 51a [62], the denomination indicating elements are arranged in increasing denominational order.

The system may be designed to default so that a given one of these denomination selection elements is initially highlighted when no call bills are to be reconciled. For example, for each no call the $10 element 2506d may initially be selected. Alternatively, the system may be designed to default to the first denomination selection element listed, e.g., the $1 denomination element 2506a.

Page 112, lines 5-27, amend paragraph as follows.

For example, suppose the highest correlation was associated with a $1, the second highest correlation was associated with $10, and the third highest correlation was associated with $50. According to this embodiment, the system would initially suggest that the no call was a $1. If the operator determined the no call was not a $1, the system would then suggest that the no call was a $10. If the operator determined the no call was not a $10, the system would then suggest that the no call was a $50. For example, according to the embodiment of FIGs. 53a-b [64a-b], the system would first ask whether the no call was a $1 by displaying the message "$1?" in the display area 2704. If the no call was a $1, the operator would depress the accept or yes key 2710. If the no call was not a $1 bill, the operator would depress the other denomination or no key 2711, in which case, the display area would display the message "$10?" and so on. Alternatively, the denomination selection elements may be arranged so that their relative order is based on the correlation results. For example, taking the menu list 2605 of FIG. 52 [63], the denomination elements may be ordered in the order of decreasing correlation values, e.g., according to the previous example with the $1 denomination element being listed first, the $10 denomination element being listed second, the $50 denomination element being listed third and so on. Alternatively, the denomination elements may be listed in the reverse order. According to

another embodiment, the denomination element associated with the highest correlation may be listed in the middle of the list surrounded by the denomination elements associated with the second and third highest correlations, and so on. For the above example, the $1 element 2606a would be listed in the middle of the menu list 2605 surrounded by the $10 element 2606d on one side and the $50 element 2606f on the other side.

Page 113, line 28, to page 114, line 22, amend paragraph as follows.

Now several methods will be described in connection reconciliation of no calls in multi-output pocket machines after all bills in a stack have been processed. Recalling a previous example in which four no call bills were separated out from a stack of fifty bills and the machine halted after processing all fifty bills, the system then prompts the operator to reconcile the value of the four no call bills. For example, assume the no call bills corresponded to the 5th, 20th, 30th, and 31st bills in the stack and were $2, $50, $10, and $2 bills respectively. The degree of intelligence employed by the system in prompting the operator to reconcile the value of the no call bills may vary depending on the particular embodiment employed. According to one embodiment the operator may depress or select the denomination selection elements corresponding the denominations of the no call bills without any prompting from the system as to their respective denominations. For example, using the control panel of FIG. 48, the operator would depress the $2 selection element 1064g [64g] twice, the $10 selection element 1064c once, and the $50 selection element 1064e once. The system may or may not inform the operator that four no call bills must be reconciled and may or may not limit the operator to entering four denominations. Likewise, in other embodiments, the operator may use the scroll keys to cause the desired denomination to become selected and then depress the accept key. Alternatively, a

numerical keypad may be provided for permitting the operator to indicate the number of bills of each denomination that have not been called. For example, the above example, the operator could use the scroll keys so that the $2 denomination was selected, then press "2" on the keypad for the number of $2 no calls in the batch, and then press an enter or accept key. Then the operator could use the scroll keys so that the $10 denomination was selected, then press "1" on the keypad for the number of $10 no calls in the batch, and then press an enter or accept key and so on. The keypad may comprise, for example, keys or selection elements associated with the digits 0-9.

Page 122, lines 5-8, amend paragraph as follows.

The operation of the distribution step is now described in greater detail. As mentioned previously, at step 10c of flowchart of FIG. 2, the user allocates the amount deposited, whether the amount deposited is in the form of bills or coin. This step is illustrated in detail in FIGs. 56b, 56c, and 56d [58b, 58c, and 58d].

Page 139, lines 5-21, amend paragraph as follows.

When an invalid coin is detected by one of the discriminating sensors described above, the invalid coin is separated from the valid coins and returned to the customer. In the illustrative module 8, this separation is effected outside the sorting disc by the shunting device illustrated in FIGS. 66-69. The curved exit chute 1800 includes two slots 1802, 1804 separated by an internal partition 1806. The internal partition 1806 is pivotally mounted to a stationary base 1808 so that the internal partition 1806 may be moved, perpendicular to the plane of the coins, by an actuator 1810 between an up position (FIG. 69 [68]) and a down position (FIG. 68 [67]). The exit chute

1800 is positioned adjacent an exit channel of the coin sorter such that coins exiting the coin

sorter are guided into the slot 1802 when the internal partition 1806 is in the down position (FIG.

67). When an invalid coin is detected by the discriminating sensor D, the actuator 1810 moves

the internal partition 1806 to the up position (FIG. 69 [64]) so that the invalid coin now enters the

slot 1804 of the exit chute 1800. Coins entering the slot 1804 are discharged into the tube that

conveys those coins to the coin-return slot 62 at the front of the system. While FIGS. 66-69 [65-

68] illustrate only a single exit chute, it will be apparent that a similar exit chute is provided at

each of the six coin exit locations around the circumference of the sorting disc.

IN THE CLAIMS:

Please cancel claims 1-211.

Please add new claims 212-261 as follows.

--212.   (New) A machine for redeeming currency from a customer, comprising:

a coin module for receiving bulk mixed coins inputted by said customer, said coin

module discriminating between valid and invalid coins of said bulk mixed

coins;

a bill module for receiving bills inputted by said customer, said bill module

discriminating between valid and invalid bills;

a dispenser for dispensing a card having a storage medium for storing a monetary

value; and

a controller coupled to said coin module, said bill module, and said dispenser, said

controller determining a total inputted value of said valid coins and said

valid bills from said coin module and said bill module, said controller

instructing said dispenser to dispense said card with a monetary value that is related to said total inputted value.

213. (New) The redemption machine of claim 212, wherein said coin module is a high-speed coin sorter having a rotating disc and a stationary sorting head for processing said bulk mixed coins.

214. (New) The redemption machine of claim 212, wherein said coin module is a high-speed coin sorter using a rail with selectively sized openings for processing said bulk mixed coins.

215. (New) The redemption machine of claim 212, wherein said coin module includes at least two bags that receive coins from a certain denomination, said controller being coupled to a divertor for selectively diverting coins to one of said at least two bags.

216. (New) The redemption machine of claim 212, wherein said inputted coins and bills are held in escrow until said customer approves said total inputted value, said controller dispensing said card upon receipt of said customer approval.

217. (New) The redemption machine of claim 212, further including a printer for printing a written record of said transaction.

218. (New) The redemption machine of claim 212, further including a slot having means for reading and writing to a smart card, said controller being coupled to said reading and writing means and capable of adding value to said smart card, said machine having a customer interface panel allowing said customer to allocate a portion of said total inputted value to said smart card and a portion of said total inputted value to said card that is dispensed from said card dispenser.

219.   (New) The redemption machine of claim 212, further including a currency dispenser for dispensing currency to said customer, said controller being coupled to said currency dispenser, said machine having a customer interface panel allowing said customer to allocate a portion of said total inputted value as currency dispensed from said currency dispenser and a portion of said total inputted value to said card that is dispensed from said card dispenser.

220.   (New) The redemption machine of claim 212, further including a connector coupling said machine to an external network accessing a credit line of said customer, said machine having a customer interface panel allowing said customer to withdraw funds from said credit line, said total inputted value including said withdrawn funds from said credit line.

221.   (New) The redemption machine of claim 220, wherein said credit line is in the form of a credit card, said machine including a slot having a media reader for reading information from said credit card of said customer.

222.   (New) The redemption machine of claim 212, wherein said coin module, said bill module, said dispenser, and said controller are all integrated into a single housing.

223.   (New) The redemption machine of claim 212, wherein said card from said dispenser is a smart card.

224.   (New) The redemption machine of claim 212, wherein said bill module receives a stack of bills of mixed denominations.

225.   (New) The redemption machine of claim 212, wherein said coin module and said bill module count, respectively, said valid coins and said valid bills, and said controller receives a total value from both said coin module and said bill module that said controller adds to determine said total inputted value.

226. (New) The redemption machine of claim 212, wherein said monetary value is equal to said total inputted value.

227. (New) A method of redeeming currency from a customer at a self-service machine, comprising:

receiving bulk mixed coins inputted from said customer;

discriminating between valid coins and invalid coins of said bulk mixed coins;

receiving at least one bill inputted from said customer;

discriminating between valid bills and invalid bills from said at least one bill inputted by said customer;

determining a total inputted value of said valid bills and said valid coins; and

dispensing a card having a storage medium for storing a monetary value that is related to said total inputted value.

228. (New) The method of claim 227, further including receiving a credit card from said customer so as to deduct an amount from a line of credit from said credit card, said step of determining said total inputted value further including adding said amount from said line of credit.

229. (New) The method of claim 228, further including receiving instructions from said customer regarding said amount deducted from said line of credit.

230. (New) The method of claim 227, wherein said card is a smart card.

231. (New) The method of claim 227, further including distributing said valid coins into a plurality of coin receptacles, each receptacle in said plurality of coin receptacles being dedicated to a certain denomination.

232.   (New) The method of claim 227, further including selectively distributing valid coins of a first denomination to one of two receptacles dedicated to said first denomination.

233.   (New) The method of claim 227, further including selectively distributing said valid coins to one of a plurality of coin receptacles, each receptacle of said plurality of coin receptacles being dedicated to all denominations.

234.   (New) The method of claim 227, wherein said monetary value is equal to said total inputted value.

235.   (New) The method of claim 227, further including holding said coins and said bills received from said customers in escrow, and said step of dispensing said card includes receiving an approval response from said customer concerning said total inputted value being held in escrow.

236.   (New) The method of claim 227, wherein said receiving said bills includes receiving a stack of bills of mixed denominations.

237.   (New) A self-service machine for redeeming currency from a customer, comprising:

    a coin module for receiving bulk mixed coins inputted by said customer, said coin module discriminating between valid and invalid coins of said bulk mixed coins;

    a bill module for receiving bills inputted by said customer, said bill module discriminating between valid and invalid bills;

    a dispenser for dispensing a card having a storage medium for storing a monetary value;

a slot for receiving a credit card of said customer and including a media reader for reading information from said credit card;

a connector coupling said machine to an external network accessing a credit line associated with said credit card of said customer;

a customer interface panel allowing said customer to withdraw funds from said credit line after said credit card is inputted into said slot;

a controller coupled to said coin module, said bill module, said dispenser, said connector, and said media reader of said slot, said controller determining a total inputted value, said total inputted value being the sum of said valid coins, said valid bills, and said withdrawn funds from said credit line, said controller instructing said dispenser to dispense said card with a monetary value that is related to said total inputted value; and

a printer coupled to said controller for printing a written record of the redemption transaction.

238. (New) The redemption machine of claim 237, wherein said coin module, said bill module, said dispenser, said connector, said customer interface panel, said controller, and said printer are all integrated into a single housing.

239. (New) The redemption machine of claim 237, wherein said bill module receives a stack of bills of mixed denominations.

240. (New) The redemption machine of claim 237, wherein said monetary value is equal to said total inputted value.

241.   (New) The redemption machine of claim 237, wherein said coin module distributes said valid coins into a plurality of coin receptacles, each receptacle in said plurality of coin receptacles being dedicated to a certain denomination.

242.   (New) A self-service machine for redeeming currency from a customer, said machine located at a retail location with an account system including a personal customer account for said customer, said machine comprising:

> a coin module for processing bulk mixed coins inputted by said customer, said coin module discriminating between valid and invalid coins of said bulk mixed coins;
>
> a slot for processing a card with an associated monetary value;
>
> a connector coupling said machine to said account system at said location; and
>
> a controller coupled to said coin module and said slot for processing said card, said controller determining a total inputted value as the sum of said valid coins and a monetary value withdrawn from a card received in said slot, said controller communicating with said account system via said connector to credit said personal customer account by an amount related to said total inputted value.

243.   (New) The redemption machine of claim 242, wherein said coin module includes at least two bags that receives coins from a certain denomination, said controller being coupled to a divertor for selectively diverting coins to one of said at least two bags.

244.   (New) The redemption machine of claim 242, wherein said coins are held in escrow until said customer approves said total inputted value, said controller crediting said personal customer account upon receipt of said customer approval.

245.   (New) The redemption machine of claim 242, wherein said location is a grocery store.

246.   (New) The redemption machine of claim 242, wherein said location is a bank.

247.   (New) The redemption machine of claim 242, wherein said card is a smart card.

248.   (New) The redemption machine of claim 242, wherein said card is a credit card, said machine being coupled to a network accessing a line of credit associated with said credit card.

249.   (New) The redemption machine of claim 242, wherein said bulk mixed coins are tokens.

250.   (New) A method for redeeming currency from a customer at a location, said location including a self-service machine connected to an accounting system at said location with a personal customer account for said customer, said method comprising:

> receiving bulk mixed coins inputted from said customer at said self-service machine;
>
> discriminating between valid coins and invalid coins of said bulk mixed coins;
>
> receiving from said customer a card with an associated monetary value;
>
> reading said monetary value from said card;
>
> determining a total inputted value, said total inputted value being said valid coins and said monetary value from said card; and
>
> instructing, via said self-service machine, said accounting system to credit said personal customer account by an amount related to said total inputted value.

251. (New) The method of claim 250, wherein said card is a credit card from said customer, said reading said monetary value includes deducting an amount from a line of credit from said credit card.

252. (New) The method of claim 251, further including receiving instructions from said customer regarding said amount deducted from said line of credit.

253. (New) The method of claim 250, wherein said location is a grocery store.

254. (New) The method of claim 250, wherein said location is a bank.

255. (New) The method of claim 250, wherein said coins are tokens.

256. (New) A method for redeeming currency from a customer at a location, said location including a self-service machine connected to an accounting system at said location with a personal customer account for said customer, said method comprising:

> receiving bulk mixed coins inputted from said customer at said self-service machine;
>
> discriminating between valid coins and invalid coins of said bulk mixed coins;
>
> receiving at least one bill inputted from said customer;
>
> discriminating between valid bills and invalid bills from said at least one bill inputted by said customer;
>
> determining a total inputted value, said total inputted value being said valid coins and said valid bills; and
>
> instructing, via said self-service machine, said accounting system to credit said personal customer account by an amount related to said total inputted value.

257.   (New) The method of claim 259, further including receiving from said customer a card with an associated monetary value and reading said monetary value from said card, said step of determining said total inputted value including adding said monetary value from said card.

258.   (New) A method of redeeming currency from a customer at a self-service machine, comprising:

receiving money inputted from said customer including at least bulk mixed coins;

discriminating between authentic and non-authentic forms of said money including discriminating between valid coins and invalid coins of said bulk mixed coins;

determining a total inputted value of said authentic forms of said money; and

dispensing a card having a storage medium for storing a monetary value that is related to said total inputted value.

259.   (New) The method of claim 258, further including receiving a credit card from said customer so as to deduct an amount from a line of credit from said credit card, said step of determining said total inputted value further including adding said amount from said line of credit.

260.   (New) The method of claim 259, further including receiving instructions from said customer regarding said amount deducted from said line of credit.

261.   (New) The method of claim 258, wherein said receiving money includes receiving bills from said customer.--

REMARKS

Claims 212-261 remain in the application for prosecution. Claims 1-211 have been cancelled. Claims 212-261 have been added. Submitted herewith is a clean set of pending claims.

Also submitted herewith is a revised specification. It is believed that no new matter is included in the specification. The specification merely incorporates the amendments introduced in the parent application.

The new claims are directed to a funds redemption machine and are supported by the parent application, U.S. Patent Application No. 08/814,978, filed March 11, 1997, and by the grandparent application, U.S. Patent Application No. 08/664,262, filed May 13, 1996, now issued as U.S. Patent No. 5,982,918.

Independent claims 212 and 227 generally relate to a novel redemption machine that receives bulk mixed coins and bills from the customer and dispenses a card having a storage medium with a monetary value. Independent claim 237 is similar to independent claims 212 and 227, but further requires the machine to allow the customer to also withdraw funds from a credit card that serves as a monetary source for applying to the card that is dispensed. Similarly, independent claims 242 and 250 are generally directed to a novel redemption machine that receives bulk mixed coins and a card having monetary value, and credits the customer's personal account in the accounting system at the location where the redemption machine resides (*e.g.*, a grocery store). Like independent claims 242 and 250, independent claim 256 is generally directed to a novel redemption machine that receives bulk mixed coins and bills, and credits the customer's personal account in the accounting system at the location where the redemption machine resides (*e.g.*, a grocery store). Independent claim 258 is similar to independent claims

212 and 227 as it requires the machine to receive money, including bulk mixed coins, from the customer and dispenses a card having a storage medium with a monetary value. Support for independent claims 212, 227, 237, 242, 250, 256 and 258 can be found, for example, in the parent application at pages 117-118 and FIGS. 1B, 1C, 56B, and in U.S. Patent No. 5,982,918 at columns 11-12 and FIGS. 1B, 1C, 1G.

The Applicants believe the claims are allowable over the prior art of record and are in condition for allowance.

If there are any matters which may be resolved or clarified through a telephone interview, the Examiner is respectfully requested to contact the Applicants' undersigned attorney at the number indicated.

Respectfully submitted,

Date: February 27, 2002

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Clean Set Of Changes To Specification

Page 1, title, amend title as follows.

Automatic Funds Processing System

Page 1, lines 2-3, amend paragraph as follows.

This is a divisional of U.S. Application No. 08/814,978, filed March 11, 1997; which is a complete application claiming the benefit of U.S. Application No. 60/031,604, filed November 27, 1996, and is a continuation-in-part of U.S. Application No. 08/664,262, filed May 13, 1996, now issued as U.S. Patent No. 5,982,918.

Page 4, lines 1-2, amend paragraph as follows.

FIG. 1s is a perspective view of a document processor system having two output bins;

Page 4, lines 3-4, amend paragraph as follows.

FIG. 1t is a side view of an evaluation device depicting various transport rolls in side elevation according to one embodiment of the present invention;

Page 4, lines 17-18, amend paragraph as follows.

FIG. 4e illustrates one embodiment of size determining sensors;

FIG. 4f illustrates the operation of the scanning process in the discrimination unit according to principles of the present invention;

Page 6, lines 4-6, amend paragraph as follows.

FIG. 28 is a flowchart illustrating the steps performed in optically determining the denomination of a bill based on the location and color of the security thread according to principles of the present invention;

Page 6, lines 9-10, amend paragraph as follows.

FIG. 30 is a flowchart illustrating the steps performed in optically denominating a bill and authenticating the bill based on thread location and/or color information;

Page 6, lines 11-13, amend paragraph as follows.

FIG. 31 is a flowchart illustrating the steps performed in denominating a bill based on thread location and/or color information and optically authenticating the bill;

Page 7, lines 4-6, delete paragraph.

Page 7, lines 7-8, amend paragraph as follows.

FIGs. 39-47 illustrate alternative methods for denominating and/or authenticating according to principles of the present invention;

Page 7, lines 9-18, delete five paragraphs and insert the following paragraph.

--FIGs. 48a-48c illustrate control panels;--

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Page 7, lines 24-25, amend paragraph as follows.

FIG. 56a is a flowchart of conducting a document transaction according to principles of the present invention;

Page 8, lines 12-13, amend paragraph as follows.

FIG. 60 is an enlarged section taken generally along line 62-62 in FIG. 59, showing the coins in full elevation;

Page 8, lines 14-15, amend paragraph as follows.

FIG. 61 is an enlarged section taken generally along line 63-63 in FIG. 59, showing in full elevation a nickel registered with an ejection recess;

Page 9, lines 7-27, amend paragraph as follows.

As illustrated in FIGs. 1a and 1b, a user deposits bills or documents into an input receptacle 16. By "currency", "documents", or "bills" it is meant to include not only conventional U.S. or foreign bills, such as $1 bills, but also to include checks, deposit slips, coupon and loan payment documents, food stamps, cash tickets, savings withdrawal tickets, check deposit slips, savings deposit slips, and all other documents utilized as a proof of deposit at financial institutions. It is also meant by the term "documents" to include loan applications, credit card applications, student loan applications, accounting invoices, debit forms, account transfer forms, and all other types of forms with predetermined fields. By "financial institution documents" it is meant to include all of the above documents with the exception of currency. A transport mechanism 18 transports the documents from the input receptacle 16 past a full image

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scanner 12, as the documents are illuminated by a light (not shown). The full image scanner 12, described in greater detail below, scans the full image of the document, recognizes certain fields within the document, and processes information contained within these fields in the document. For example, the full image scanner 12 may search for the serial number field when processing U.S. currency, determine the serial number once the field is located, and store the serial number for later use by the system. The system may also be used to capture any document image for electronic document display, electronic document storage, electronic document transfer, electronic document recognition (such as denomination recognition or check amount recognition) or any other processing function that can be performed using an electronic image.

Page 9, line 28, to page 10, line 4, amend paragraph as follows.

Next, the transport mechanism 18 transports the document past a discrimination and authentication unit 14 which is also described in greater detail below. The discrimination and authentication unit 14 authenticates the document and, in the case of a bill, determines the denomination of the bill. On other documents, such as checks, the system may capture information such as the check amount, account number, bank number, or check number. The discrimination and authentication unit 14 also directs the transport unit 18 to place the document in the output receptacle 20 as described below.

Page 18, lines 16-22, amend paragraph as follows.

Another image processing network is described in connection with FIG. 1v. In this network, gateways are used to connect networks which have different network architectures. Gateways use all seven layers of the OSI model and perform protocol conversion functions at the

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Application layer. An outside accounting system 6148 is coupled to FEP 6150a which is connected to a token-ring interface coupler (TIC) gateway 6150b. TIC gateway 6150b provides connections to token ring networks 6156, 6162, and 6164 which include other full image scanners.

Page 18 lines 23-27, amend paragraph as follows.

The highest performance LAN gateway is the link between a token-ring network 6156 and the image processing device's FEP 6150a via the TIC gateway 6150b. The TIC 6150b permits a 4 mbps or 16 mbps connection depending upon the hardware used. The TIC 6150b is viewed by the host as a cluster controller; the outside accounting system polls the TIC 6150b which in turn polls any units on the token-ring network 6156.

Page 21, lines 9-14, amend paragraph as follows.

FIG. 1s depicts an exterior perspective view and FIG. 1t is a side view of a multi-pocket document processing system 5010 according to one embodiment of the present invention. According to one embodiment the document processing system 5010 is compact having a height (H) of about 17 ½ inches, width (W) of about 13 ½ inches, and a depth (D) of about 15 inches. The evaluation device 5010 may be rested upon a tabletop.

Page 21, lines 15-27, amend paragraph as follows.

In FIGS. 1s and 1t, documents are fed, one by one, from a stack of documents placed in an input receptacle 5012 into a transport mechanism. The transport mechanism includes a transport plate or guide plate 240 for guiding documents to one of a plurality of output receptacles 5217a and 5217b. Before reaching the output receptacles 5217a, 5217b a document

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can be, for example, evaluated, analyzed, authenticated, discriminated, counted and/or otherwise processed by a full image scanning module. The results of the above process or processes may be used to determine to which output receptacle 5217a, 5217b a document is directed. In one embodiment, documents such as currency bills are transported, scanned, and identified at a rate in excess of 800 bills or documents per minute. In another embodiment, documents such as currency bills are transported, scanned, and identified at a rate in excess of 1000 bills or documents per minute. In the case of currency bills, the identification includes the determination of the denomination of each bill.

Page 21, line 28, to page 22, line 9, amend paragraph as follows.

The input receptacle 5012 for receiving a stack of documents to be processed is formed by downwardly sloping and converging walls 205 and 206 (see FIG. 1t) formed by a pair of removable covers (not shown) which snap onto a frame. The converging wall 206 supports a removable hopper (not shown) that includes vertically disposed side walls (not shown). One embodiment of an input receptacle is described and illustrated in more detail in United States patent application Serial No. 08/450,505, filed May 26, 1995, entitled "Method and Apparatus for Discriminating and Counting Documents", now issued as U.S. Pat. No. 5,687,963, which is incorporated by reference in its entirety. The document processing system 5010 in FIG. 1s has a touch panel display 5015 in one embodiment of the present invention which displays appropriate "functional" keys when appropriate. The touch panel display 5015 simplifies the operation of the multi-pocket document processing system 5010. Alternatively or additionally physical keys or buttons may be employed.

Clean Set Of Changes To Specification

Page 22, lines 10-22, amend paragraph as follows.

From the input receptacle 5012, the documents are moved in seriatim from a bottom of the stack along a curved guideway 211 (shown in FIG. 1t) which receives documents moving downwardly and rearwardly and changes the direction of travel to a forward direction. Although shown as being fed from the bottom, the documents can be fed from the top, front, or back of the stack. The type of feeding used could be friction feed, a vacuum feed, or any other method of feeding known to those skilled in the art. A stripping wheel mounted on a stripping wheel shaft 219 aids in feeding the documents to the curved guideway 211. The curvature of the guideway 211 corresponds substantially to the curved periphery of a drive roll 223 so as to form a narrow passageway for the bills along the rear side of the drive roll 233. An exit end of the curved guideway 211 directs the documents onto the transport plate 240 which carries the documents through an evaluation section and to one of the output receptacles 5217a, 5217b.

Page 22, lines 23-30, amend paragraph as follows.

Stacking of the documents in one embodiment is accomplished by a pair of driven stacking wheels 5212a and 5213a for the first or upper output receptacle 5217a and by a pair of stacking wheels 5212b and 5213b for the second or bottom output receptacle 5217b. The stacker wheels 5212a,b and 5213a,b are supported for rotational movement about respective shafts 214a,b journalled on a rigid frame and driven by a motor (not shown). Flexible blades of the stacker wheels 5212a and 5213a deliver the documents onto a forward end of a stacker plate 214a. Similarly, the flexible blades of the stacker wheels 5212b and 5213b deliver the bills onto a forward end of a stacker plate 214b.

Clean Set Of Changes To Specification

Page 23, lines 1-4, amend paragraph as follows.

A diverter 260 directs the documents to either the first or second output receptacle 5217a, 5217b. When the diverter is in a lower position, documents are directed to the first output receptacle 5217a. When the diverter 260 is in an upper position, documents proceed in the direction of the second output receptacle 5217b.

Page 23, lines 5-9, amend paragraph as follows.

FIGS. 1j-1 depict multi-pocket document processing system 10, such as a currency discriminators, according to embodiments of the present invention. FIG. 1j depicts a three-pocket document processing system 10. FIG. 1k depicts a four-pocket document processing system 10. FIG. 1l depicts a six-pocket document processing system 10.

Page 23, lines 10-15, amend paragraph as follows.

The multi-pocket document processing systems 10 in FIG. 1j-1 have a transport mechanism which includes a transport plate or guide plate 240 for guiding currency documents to one of a plurality of output receptacles 217. The transport plate 240 according to one embodiment is substantially flat and linear without any protruding features. Before reaching the output receptacles 217, a document can be, for example, evaluated, analyzed, authenticated, discriminated, counted and/or otherwise processed.

Page 23, lines 16-26, amend paragraph as follows.

The multi-pocket document processing systems 10 move the documents in seriatim from a bottom of the stack along the curved guideway 211 which receives documents moving

downwardly and rearwardly and changes the direction of travel to a forward direction. Although shown as being fed from the bottom, the documents can be fed from the top, front, or back of the stack. An exit end of the curved guideway 211 directs the documents onto the transport plate 240 which carries the documents through an evaluation section and to one of the output receptacles 217. A plurality of diverters 260 direct the documents to the output receptacles 217. When the diverter 260 is in a lower position, documents are directed to the corresponding output receptacle 217. When the diverter 260 is in an upper position, documents proceed in the direction of the remaining output receptacles.

Page 23, line 27, to page 24, line 5, amend paragraph as follows.

The multi-pocket document processing systems 10 of FIG. 1j-1 according to one embodiment includes passive rolls 260, 251 which are mounted on an underside of the transport plate 240 and are biased into counter-rotating contact with their corresponding driven upper rolls 223 and 241. Other embodiments include a plurality of follower plates which are substantially free from surface features and are substantially smooth like the transport plate 240. The follower plates 262 and 278 are positioned in spaced relation to transport plate 240 so as to define a currency pathway therebetween. In one embodiment, follower plates 262 and 278 have apertures only where necessary for accommodation of passive rolls 268, 270, 284, and 286.

Page 24, lines 6-10, amend paragraph as follows.

The follower plate, such as follower plate 262, works in conjunction with the upper portion of the transport plate 240 to guide a bill from the passive roll 251 to a driven roll 264 and

then to a driven roll 266. The passive rolls 268, 270 are biased by H-springs into counter-rotating contact with the corresponding driven rolls 264 and 266.

Page 33, lines 8-11, amend paragraph as follows.

A procedure for scanning bills and generating characteristic patterns is described in United States Patent No. 5,295,196 referred to above and incorporated by reference in its entirety and co-pending U.S. patent application Serial No. 08/243,807, filed on May 16, 1994 and entitled "Method and Apparatus for Currency Discrimination", now issued as U.S. Pat. No. 5,633,949.

Page 34, lines 11-24, amend paragraph as follows.

Secondly, while the printed indicia on U.S. currency is enclosed within a thin borderline, the sensing of which may serve as a trigger to begin scanning using a wider slit, most currencies of other currency systems such as those from other countries do not have such a borderline. Thus the system described above may be modified to begin scanning relative to the edge of a bill for currencies lacking such a borderline. Referring to FIG. 4f, two leading edge detectors 968 are shown. The detection of the leading edge 69 of a bill 970 by leading edge sensors 968 triggers scanning in an area a given distance away from the leading edge of the bill 970, e.g., D_1 or D_2, which may vary depending upon the preliminary indication of the identity of a bill based on the dimensions of a bill. Alternatively, the leading edge 69 of a bill may be detected by one or more of the scanheads (to be described below). Alternatively, the beginning of scanning may be triggered by positional information provided by the encoder 932 of FIG. 4a, for example, in

Clean Set Of Changes To Specification

conjunction with the signals provided by sensors 962 of FIG. 4e, thus eliminating the need for leading edge sensors 968.

Page 35, lines 22-28, amend paragraph as follows.

To accommodate scanning in areas other than the central portion of a bill, multiple scanheads may be positioned next to each other. One embodiment of such a multiple scanhead system is depicted in FIG. 6. Multiple scanheads 972a-c and 972d-f are positioned next to each other along a direction lateral to the direction of bill movement. Such a system permits a bill 74 to be scanned along different segments. Multiple scanheads 972a-f are arranged on each side of the transport path, thus permitting both sides of a bill 74 to be scanned.

Page 36, line 28, to page 37, line 7, amend paragraph as follows.

According to the embodiment of FIG. 6, the bill transport mechanism operates in such a fashion that the central area C of a bill 74 is transported between central scanheads 972b and 972e. Scanheads 972a and 972c and likewise scanheads 972d and 972f are displaced the same distance from central scanheads 972b and 972e, respectively. By symmetrically arranging the scanheads about the central region of a bill, a bill may be scanned in either direction, e.g., top edge first (forward direction) or bottom edge first (reverse direction). As described above with respect to FIG. 4a, master patterns are stored from the scanning of genuine bills in both the forward and reverse directions. While a symmetrical arrangement is preferred, it is not essential provided appropriate master patterns are stored for a non-symmetrical system.

Clean Set Of Changes To Specification

Page 37, lines 8-13, amend paragraph as follows.

While FIG. 6 illustrates a system having three scanheads per side, any number of scanheads per side may be utilized. Likewise, it is not necessary that there be a scanhead positioned over the central region of a bill. For example, FIG. 7 illustrates another embodiment of the present invention capable of scanning the segments S_1 and S_2 of FIG. 4f. Scanheads 976a, 976d, 976e, and 976h scan a bill 78 along segment S_1 while scanheads 976b, 976c, 976f, and 976g scan segment S_2.

Page 49, lines 13-23, amend paragraph as follows.

With regard to optical sensing, a variety of currency characteristics can be measured such as detection of density (U.S. Pat. No. 4,381,447), color (U.S. Pat. Nos. 4,490,846; 3,496,370; 3,480,785), length and thickness (U.S. Pat. No. 4,255,651), the presence of a security thread (U.S. Pat. No. 5,151,607) and holes (U.S. Pat. No. 4,381,447), and other patterns of reflectance and transmission (U.S. Pat. No. 3,496,370; 3,679,314; 3,870,629; 4,179,685). Color detection techniques may employ color filters, colored lamps, and/or dichroic beamsplitters (U.S. Pat. Nos. 4,841,358; 4,658,289; 4,716,456; 4,825,246, 4,992,860 and EP 325,364). An optical sensing system using ultraviolet light is described in the assignee's co-pending U.S. patent application Serial No. 08/317,349, filed October 4, 1994, now issued as U.S. Pat. No. 5,640,463, and incorporated herein by reference, and described below.

Page 52, lines 4-6, amend paragraph as follows.

The optical sensing and correlation technique are similar to that described in connection with FIG. 4a and the description made in connection with FIG. 4a is applicable to FIG. 15.

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Page 58, lines 8-29, amend paragraph as follows.

Referring now to FIG. 19, there is shown a functional block diagram illustrating one embodiment of a discrimination and authentication unit according to the present invention. FIG. 19 shows an UV sensor 442, a fluorescence sensor 444, and filters 446, 448 of a detection system such as the detection system 426 of FIG. 18a. Light from the document passes through the filters 446, 448 before striking the sensors 442, 444, respectively. An ultraviolet filter 446 filters out visible light and permits UV light to be transmitted and hence to strike UV sensor 442. Similarly, a visible light filter 448 filters out UV light and permits visible light to be transmitted and hence to strike fluorescence sensor 444. Accordingly, UV light, which has a wavelength below 400 nm, is prevented from striking the fluorescence sensor 444 and visible light, which has a wavelength greater than 400 nm, is prevented from striking the UV sensor 442. In one embodiment the UV filter 446 transmits light having a wavelength between about 260 nm and about 380 nm and has a peak transmittance at 360 nm. In one embodiment, the visible light filter 448 is a blue filter and preferably transmits light having a wavelength between about 415 nm and about 620 nm and has a peak transmittance at 450 nm. The above preferred blue filter comprises a combination of a blue component filter and a yellow component filter. The blue component filter transmits light having a wavelength between about 320 nm and about 620 nm and has a peak transmittance at 450 nm. The yellow component filter transmits light having a wavelength between about 415 nm and about 2800 nm. Examples of suitable filters are UG1 (UV filter), BG23 (blue bandpass filter), and GG420 (yellow longpass filter), all manufactured by Schott. In one embodiment the filters are about 8 mm in diameter and about 1.5 mm thick.

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Page 62, lines 1-13, amend paragraph as follows.

The determination of whether the level of UV reflected off a document is high or low is made by sampling the output of the UV sensor at a number of intervals, averaging the readings, and comparing the average level with the predetermined high/low threshold. Alternatively, a comparison may be made by measuring the amount of UV light reflected at a number of locations on the bill and comparing these measurements with those obtained from genuine bills. Alternatively, the output of one or more UV sensors may be processed to generate one or more patterns of reflected UV light and these patterns may be compared to the patterns generated by genuine bills. Such a pattern generation and comparison technique may be performed by modifying an optical pattern technique such as that disclosed in United States Pat. No. 5,295,196 incorporated herein by reference in its entirety or in United States patent application Serial No. 08/287,882 filed August 9, 1994 for a "Method and Apparatus for Document Identification," now issued as U.S. Pat. No. 5,652,802, incorporated herein by reference in its entirety.

Page 69, line 28, to page 70, line 9, amend paragraph as follows.

Examples of arrangements of magnetic sensors that may be used to detect the above described magnetic characteristics are illustrated in FIGs. 23 and 24. Additionally, the arrangements described above may also be employed such as those depicted in FIGs. 4f, 6-10, 12, and 15. FIG. 23 illustrates bill 360 being transported past magnetic sensors 364a-d in the narrow dimension of the bill. FIG. 24 illustrates bill 370 being transported past magnetic sensors 374a-c in the long dimension of the bill. Magnetic scanning using these sensors may be performed in a manner similar to that described above in connection with optical scanning. For example, each sensor may be used to generate a magnetically scanned pattern such as that

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depicted in FIG. 14. Such patterns may be compared to stored master magnetic patterns. The scanning may be performed in conjunction with timing signals provided by an encoder such as described above in connection with optical scanning.

Page 70, lines 10-21, amend paragraph as follows.

Alternatively, instead of generating scanned magnetic patterns, the presence or absence of magnetic ink in various areas may be detected and compared the stored master information coinciding with several areas where magnetic ink is expected and not expected on genuine bills of various denominations. For example, the detection of magnetic ink at area F is be expected for a $100 bill but might not be for a $50 bill and vice versa for area F'. See FIGs. 21 and 22. Accordingly, the detected magnetic information may be used to determine the denomination of a bill and/or to authenticate that a bill which has been determined to have a given denomination using a different test, such as via a comparison of an optically scanned pattern with master optical patterns, has the magnetic properties expected for that given denomination. Timing signals provided by an encoder such as described above in connection with optical scanning may be employed in detecting magnetic characteristics of specific areas of bills.

Page 70, lines 22-25, amend paragraph as follows.

Additionally, for magnetic properties that are the same for all bills, such as the presence or absence of magnetic ink in a given location, such as the absence of magnetic ink in area 347 in FIGs. 21 and 22, may be used as a general test to authenticate whether a given bill has the magnetic properties associated with genuine U.S. currency.

Page 70, line 26, to page 71, line 10, delete paragraph.

Page 71, lines 11-22, amend paragraph as follows.

Alternatively, magnetic sensors 364a-d, 366a-g, and 374a-c may detect the magnitude of magnetic fields at various locations of a bill and perform bill authentication or denomination based thereon. For example, the strength of magnetic fields may be detected at areas J, 344a, and 348. See FIG. 21. In a genuine $100 bill, no magnetic ink is present at area 348. One test to call a bill to be a $100 bill or authenticate that a bill is a $100 bill would be to compare the relative levels of magnetic field strength detected at these areas. For example, a bill may be determined genuine if a greater signal is generated by scanning area 344a than area J which in turn is greater than for area 348. Alternatively, generated signals may be compared against expected ratios, for example, that the signal for area 344a is greater than 1.5 times the signal for area J. Alternatively, the signals generated by scanning various locations may be compared to reference signals associated with genuine bills for those locations.

Page 71, line 23, to page 72, line 2, amend paragraph as follows.

Another denominating or authenticating technique may be understood with reference to area 346 of FIG. 21. It will be recalled that for this area of a $100 bill a strong magnetic signal is generated when this area is scanned in the long dimension of the bill and a weak signal is generated when this area is scanned in the narrow dimension. Accordingly, the signals generated by sensors 364 and 374 for this area can be compared to each other and/or to different threshold levels to determine whether a particular bill being scanned has these properties. This

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information may be then used to assist in calling the denomination of the bill or authenticating a bill whose denomination has previously been determined.

Page 104, line 29, to page 105, line 11, amend paragraph as follows.

The control panel 2702 of FIGs. 53a and 53b comprises a display area 2704, an accept key 2710, a next or other denomination key 2711, and a continuation key 2712. Alternatively, the accept key may be designated a "YES" key while the other denomination key may be designated a "NO" key. These keys may be physical keys or displayed keys. The system prompts or suggest a denomination by displaying an appropriate message in the display area 2704. If the operator wishes to accept this denomination suggestion, the accept key 2710 may be selected. If other the operator wishes to select a different denomination, the other denomination key 2711 may be selected. If in the example given in FIG. 53a the operator wishes to select a denomination other than the $5 prompted in the display area 2704, the other denomination key 2711 may be selected which results in prompting of a different denomination, e.g., $2 as shown in FIG. 53b. The "OTHER DENOM" key 2711 may be repeatedly selected to scroll through the different denominations.

Page 111, lines 7-14, amend paragraph as follows.

According to another embodiment, a denomination to be prompted to the operator is determined on the basis of preset criteria established by the manufacturer. For example, in FIG. 51a, the denomination indicating elements are arranged in increasing denominational order. The system may be designed to default so that a given one of these denomination selection elements is initially highlighted when no call bills are to be reconciled. For example, for each no call the

$10 element 2506d may initially be selected. Alternatively, the system may be designed to default to the first denomination selection element listed, e.g., the $1 denomination element 2506a.

Page 112, lines 5-27, amend paragraph as follows.

For example, suppose the highest correlation was associated with a $1, the second highest correlation was associated with $10, and the third highest correlation was associated with $50. According to this embodiment, the system would initially suggest that the no call was a $1. If the operator determined the no call was not a $1, the system would then suggest that the no call was a $10. If the operator determined the no call was not a $10, the system would then suggest that the no call was a $50. For example, according to the embodiment of FIGs. 53a-b, the system would first ask whether the no call was a $1 by displaying the message "$1?" in the display area 2704. If the no call was a $1, the operator would depress the accept or yes key 2710. If the no call was not a $1 bill, the operator would depress the other denomination or no key 2711, in which case, the display area would display the message "$10?" and so on. Alternatively, the denomination selection elements may be arranged so that their relative order is based on the correlation results. For example, taking the menu list 2605 of FIG. 52, the denomination elements may be ordered in the order of decreasing correlation values, e.g., according to the previous example with the $1 denomination element being listed first, the $10 denomination element being listed second, the $50 denomination element being listed third and so on. Alternatively, the denomination elements may be listed in the reverse order. According to another embodiment, the denomination element associated with the highest correlation may be listed in the middle of the list surrounded by the denomination elements associated with the second and third highest correlations, and so on. For the above example, the $1 element 2606a

would be listed in the middle of the menu list 2605 surrounded by the $10 element 2606d on one side and the $50 element 2606f on the other side.

Page 113, line 28, to page 114, line 22, amend paragraph as follows.

Now several methods will be described in connection reconciliation of no calls in multi-output pocket machines after all bills in a stack have been processed. Recalling a previous example in which four no call bills were separated out from a stack of fifty bills and the machine halted after processing all fifty bills, the system then prompts the operator to reconcile the value of the four no call bills. For example, assume the no call bills corresponded to the 5th, 20th, 30th, and 31st bills in the stack and were $2, $50, $10, and $2 bills respectively. The degree of intelligence employed by the system in prompting the operator to reconcile the value of the no call bills may vary depending on the particular embodiment employed. According to one embodiment the operator may depress or select the denomination selection elements corresponding the denominations of the no call bills without any prompting from the system as to their respective denominations. For example, using the control panel of FIG. 48, the operator would depress the $2 selection element 1064g twice, the $10 selection element 1064c once, and the $50 selection element 1064e once. The system may or may not inform the operator that four no call bills must be reconciled and may or may not limit the operator to entering four denominations. Likewise, in other embodiments, the operator may use the scroll keys to cause the desired denomination to become selected and then depress the accept key. Alternatively, a numerical keypad may be provided for permitting the operator to indicate the number of bills of each denomination that have not been called. For example, the above example, the operator could use the scroll keys so that the $2 denomination was selected, then press "2" on the keypad

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for the number of $2 no calls in the batch, and then press an enter or accept key. Then the operator could use the scroll keys so that the $10 denomination was selected, then press "1" on the keypad for the number of $10 no calls in the batch, and then press an enter or accept key and so on. The keypad may comprise, for example, keys or selection elements associated with the digits 0-9.

Page 122, lines 5-8, amend paragraph as follows.

The operation of the distribution step is now described in greater detail. As mentioned previously, at step 10c of flowchart of FIG. 2, the user allocates the amount deposited, whether the amount deposited is in the form of bills or coin. This step is illustrated in detail in FIGs. 56b, 56c, and 56d.

Page 139, lines 5-21, amend paragraph as follows.

When an invalid coin is detected by one of the discriminating sensors described above, the invalid coin is separated from the valid coins and returned to the customer. In the illustrative module 8, this separation is effected outside the sorting disc by the shunting device illustrated in FIGS. 66-69. The curved exit chute 1800 includes two slots 1802, 1804 separated by an internal partition 1806. The internal partition 1806 is pivotally mounted to a stationary base 1808 so that the internal partition 1806 may be moved, perpendicular to the plane of the coins, by an actuator 1810 between an up position (FIG. 69) and a down position (FIG. 68). The exit chute 1800 is positioned adjacent an exit channel of the coin sorter such that coins exiting the coin sorter are guided into the slot 1802 when the internal partition 1806 is in the down position (FIG. 67). When an invalid coin is detected by the discriminating sensor D, the actuator 1810 moves the

internal partition 1806 to the up position (FIG. 69) so that the invalid coin now enters the slot 1804 of the exit chute 1800. Coins entering the slot 1804 are discharged into the tube that conveys those coins to the coin-return slot 62 at the front of the system. While FIGS. 66-69 illustrate only a single exit chute, it will be apparent that a similar exit chute is provided at each of the six coin exit locations around the circumference of the sorting disc.

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212.   (New) A machine for redeeming currency from a customer, comprising:

a coin module for receiving bulk mixed coins inputted by said customer, said coin module discriminating between valid and invalid coins of said bulk mixed coins;

a bill module for receiving bills inputted by said customer, said bill module discriminating between valid and invalid bills;

a dispenser for dispensing a card having a storage medium for storing a monetary value; and

a controller coupled to said coin module, said bill module, and said dispenser, said controller determining a total inputted value of said valid coins and said valid bills from said coin module and said bill module, said controller instructing said dispenser to dispense said card with a monetary value that is related to said total inputted value.

213.   (New) The redemption machine of claim 212, wherein said coin module is a high-speed coin sorter having a rotating disc and a stationary sorting head for processing said bulk mixed coins.

214.   (New) The redemption machine of claim 212, wherein said coin module is a high-speed coin sorter using a rail with selectively sized openings for processing said bulk mixed coins.

215.   (New) The redemption machine of claim 212, wherein said coin module includes at least two bags that receive coins from a certain denomination, said controller being coupled to a divertor for selectively diverting coins to one of said at least two bags.

216.   (New) The redemption machine of claim 212, wherein said inputted coins and bills are held in escrow until said customer approves said total inputted value, said controller dispensing said card upon receipt of said customer approval.

217.   (New) The redemption machine of claim 212, further including a printer for printing a written record of said transaction.

218.   (New) The redemption machine of claim 212, further including a slot having means for reading and writing to a smart card, said controller being coupled to said reading and writing means and capable of adding value to said smart card, said machine having a customer interface panel allowing said customer to allocate a portion of said total inputted value to said smart card and a portion of said total inputted value to said card that is dispensed from said card dispenser.

219.   (New) The redemption machine of claim 212, further including a currency dispenser for dispensing currency to said customer, said controller being coupled to said currency dispenser, said machine having a customer interface panel allowing said customer to allocate a portion of said total inputted value as currency dispensed from said currency dispenser and a portion of said total inputted value to said card that is dispensed from said card dispenser.

220.   (New) The redemption machine of claim 212, further including a connector coupling said machine to an external network accessing a credit line of said customer, said machine having a customer interface panel allowing said customer to withdraw funds from said credit line, said total inputted value including said withdrawn funds from said credit line.

221.   (New) The redemption machine of claim 220, wherein said credit line is in the form of a credit card, said machine including a slot having a media reader for reading information from said credit card of said customer.

222.   (New) The redemption machine of claim 212, wherein said coin module, said bill module, said dispenser, and said controller are all integrated into a single housing.

223.   (New) The redemption machine of claim 212, wherein said card from said dispenser is a smart card.

224.   (New) The redemption machine of claim 212, wherein said bill module receives a stack of bills of mixed denominations.

225.   (New) The redemption machine of claim 212, wherein said coin module and said bill module count, respectively, said valid coins and said valid bills, and said controller receives a total value from both said coin module and said bill module that said controller adds to determine said total inputted value.

226.   (New) The redemption machine of claim 212, wherein said monetary value is equal to said total inputted value.

227.   (New) A method of redeeming currency from a customer at a self-service machine, comprising:

        receiving bulk mixed coins inputted from said customer;

        discriminating between valid coins and invalid coins of said bulk mixed coins;

        receiving at least one bill inputted from said customer;

        discriminating between valid bills and invalid bills from said at least one bill inputted by said customer;

        determining a total inputted value of said valid bills and said valid coins; and

        dispensing a card having a storage medium for storing a monetary value that is related to said total inputted value.

228.   (New) The method of claim 227, further including receiving a credit card from said customer so as to deduct an amount from a line of credit from said credit card, said step of determining said total inputted value further including adding said amount from said line of credit.

229.   (New) The method of claim 228, further including receiving instructions from said customer regarding said amount deducted from said line of credit.

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230. (New) The method of claim 227, wherein said card is a smart card.

231. (New) The method of claim 227, further including distributing said valid coins into a plurality of coin receptacles, each receptacle in said plurality of coin receptacles being dedicated to a certain denomination.

232. (New) The method of claim 227, further including selectively distributing valid coins of a first denomination to one of two receptacles dedicated to said first denomination.

233. (New) The method of claim 227, further including selectively distributing said valid coins to one of a plurality of coin receptacles, each receptacle of said plurality of coin receptacles being dedicated to all denominations.

234. (New) The method of claim 227, wherein said monetary value is equal to said total inputted value.

235. (New) The method of claim 227, further including holding said coins and said bills received from said customers in escrow, and said step of dispensing said card includes receiving an approval response from said customer concerning said total inputted value being held in escrow.

236. (New) The method of claim 227, wherein said receiving said bills includes receiving a stack of bills of mixed denominations.

237. (New) A self-service machine for redeeming currency from a customer, comprising:
   a coin module for receiving bulk mixed coins inputted by said customer, said coin module discriminating between valid and invalid coins of said bulk mixed coins;
   a bill module for receiving bills inputted by said customer, said bill module discriminating between valid and invalid bills;
   a dispenser for dispensing a card having a storage medium for storing a monetary value;

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a slot for receiving a credit card of said customer and including a media reader for reading information from said credit card;

a connector coupling said machine to an external network accessing a credit line associated with said credit card of said customer;

a customer interface panel allowing said customer to withdraw funds from said credit line after said credit card is inputted into said slot;

a controller coupled to said coin module, said bill module, said dispenser, said connector, and said media reader of said slot, said controller determining a total inputted value, said total inputted value being the sum of said valid coins, said valid bills, and said withdrawn funds from said credit line, said controller instructing said dispenser to dispense said card with a monetary value that is related to said total inputted value; and

a printer coupled to said controller for printing a written record of the redemption transaction.

238.   (New) The redemption machine of claim 237, wherein said coin module, said bill module, said dispenser, said connector, said customer interface panel, said controller, and said printer are all integrated into a single housing.

239.   (New) The redemption machine of claim 237, wherein said bill module receives a stack of bills of mixed denominations.

240.   (New) The redemption machine of claim 237, wherein said monetary value is equal to said total inputted value.

241.   (New) The redemption machine of claim 237, wherein said coin module distributes said valid coins into a plurality of coin receptacles, each receptacle in said plurality of coin receptacles being dedicated to a certain denomination.

242. (New) A self-service machine for redeeming currency from a customer, said machine located at a retail location with an account system including a personal customer account for said customer, said machine comprising:

> a coin module for processing bulk mixed coins inputted by said customer, said coin module discriminating between valid and invalid coins of said bulk mixed coins;
>
> a slot for processing a card with an associated monetary value;
>
> a connector coupling said machine to said account system at said location; and
>
> a controller coupled to said coin module and said slot for processing said card, said controller determining a total inputted value as the sum of said valid coins and a monetary value withdrawn from a card received in said slot, said controller communicating with said account system via said connector to credit said personal customer account by an amount related to said total inputted value.

243. (New) The redemption machine of claim 242, wherein said coin module includes at least two bags that receives coins from a certain denomination, said controller being coupled to a divertor for selectively diverting coins to one of said at least two bags.

244. (New) The redemption machine of claim 242, wherein said coins are held in escrow until said customer approves said total inputted value, said controller crediting said personal customer account upon receipt of said customer approval.

245. (New) The redemption machine of claim 242, wherein said location is a grocery store.

246. (New) The redemption machine of claim 242, wherein said location is a bank.

247. (New) The redemption machine of claim 242, wherein said card is a smart card.

248. (New) The redemption machine of claim 242, wherein said card is a credit card, said machine being coupled to a network accessing a line of credit associated with said credit card.

249. (New) The redemption machine of claim 242, wherein said bulk mixed coins are tokens.

250. (New) A method for redeeming currency from a customer at a location, said location including a self-service machine connected to an accounting system at said location with a personal customer account for said customer, said method comprising:

receiving bulk mixed coins inputted from said customer at said self-service machine;

discriminating between valid coins and invalid coins of said bulk mixed coins;

receiving from said customer a card with an associated monetary value;

reading said monetary value from said card;

determining a total inputted value, said total inputted value being said valid coins and said monetary value from said card; and

instructing, via said self-service machine, said accounting system to credit said personal customer account by an amount related to said total inputted value.

251. (New) The method of claim 250, wherein said card is a credit card from said customer, said reading said monetary value includes deducting an amount from a line of credit from said credit card.

252. (New) The method of claim 251, further including receiving instructions from said customer regarding said amount deducted from said line of credit.

253. (New) The method of claim 250, wherein said location is a grocery store.

254. (New) The method of claim 250, wherein said location is a bank.

255. (New) The method of claim 250, wherein said coins are tokens.

256.   (New) A method for redeeming currency from a customer at a location, said location including a self-service machine connected to an accounting system at said location with a personal customer account for said customer, said method comprising:

   receiving bulk mixed coins inputted from said customer at said self-service machine;

   discriminating between valid coins and invalid coins of said bulk mixed coins;

   receiving at least one bill inputted from said customer;

   discriminating between valid bills and invalid bills from said at least one bill inputted by said customer;

   determining a total inputted value, said total inputted value being said valid coins and said valid bills; and

   instructing, via said self-service machine, said accounting system to credit said personal customer account by an amount related to said total inputted value.

257.   (New) The method of claim 259, further including receiving from said customer a card with an associated monetary value and reading said monetary value from said card, said step of determining said total inputted value including adding said monetary value from said card.

258.   (New) A method of redeeming currency from a customer at a self-service machine, comprising:

   receiving money inputted from said customer including at least bulk mixed coins;

   discriminating between authentic and non-authentic forms of said money including discriminating between valid coins and invalid coins of said bulk mixed coins;

   determining a total inputted value of said authentic forms of said money; and

   dispensing a card having a storage medium for storing a monetary value that is related to said total inputted value.

259.   (New) The method of claim 258, further including receiving a credit card from said customer so as to deduct an amount from a line of credit from said credit card, said step of determining said total inputted value further including adding said amount from said line of credit.

260. (New) The method of claim 259, further including receiving instructions from said customer regarding said amount deducted from said line of credit.

261. (New) The method of claim 258, wherein said receiving money includes receiving bills from said customer.